MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY.

UNITED STATES DEPARTMENT OF AGRICULTURE.

Number 25. May, 1916.

BUREAU VISITOR DURING MAY.

Dr. Th. Mortensen, of the Zoological Museum, Copenhagen, called at the Bureau on May 12th. Dr. Mortensen has been traveling extensively for the past year or more in the interests of his Museum, and is now returning home. He is well known for his researches in oceanography.

DOCTOR MARCHAL'S NEW BOOK.

Page proofs have been received of Paul Marchal's account of his visit to America. The title, translated, is "The Biological Sciences Applied to Agriculture and the Struggle against the Enemies of Plants in the United States." The volume will cover about 400 royal octavo pages, and is enthusiastic in its praise of the organization of the Bureau of Entomology.

INSECTS AS FOOD FOR MAN.

Now that the season of insect activity is on again, attention of field workers is called to the desirability of experiments on the edibility of insects. Recently Lachnosterna larvae have been made into a salad by Doctor Langworthy of the Office of Home Economics, and this salad has been tasted by about a dozen men in the Bureau, who found it not at all disagreeable. A broth was also made, which Mr. O'Leary and the writer found very good. Mr. Craighead told me yesterday that he had been trying Cerambycid larvae fried in butter, and, while he is not enthusiastic, he pronounces them edible. I will make no suggestions as to method of preparation, but will leave that to the ingenuity of any of you who have a chance to experiment. (L.O. Howard.)

APHIS OR APHID.

The undersigned have carefully considered the question raised by Dr. Chittenden as to the use of the words "plant lice", "aphid", etc., in publications of the Bureau of Entomology. It appears that the following terminology relative to common names of species of Aphididae should be adopted in Bureau Publications:-

(1) Aphis should be used in connection with some other modifying word as, the "woolly apple aphis", "corn aphis", "box-elder aphis", etc. This conforms to the practice adopted by the American Association of Economic Entomologists.

(2) The word "aphid" or "aphids"(plural) should be used in referring to plant lice in general. While the origin of the word Aphis is unknown, it has apparently been latinized and should properly be rendered in English, as Dr. Chittenden suggests, as aphidid, or aphides. However, since the word "aphid" is given preference in most dictioneries, and is almost exclusively used by students of Aphididae, it does not seem good policy to attempt to change a practice so well fixed.

As regards the use of the word "plant-louse", this should be abandoned and "aphid" employed in its place.

(SIGNED): C. L. MARLATT.
A. L. QUAINTANCE.
W. D. HUNTER.

INSPECTION OF CHRISTMAS TREES AND GREENS.

A. F. Burgess, D. M. Rogers, and L. H. Worthley were in Washington during the month to attend the hearing before the Horticultural Board on the quarantines of the gypsy and brown-tail moths. It was decided by the Board that the present provision under which Christmas trees and greens are shipped from the infested territory under inspection will be continued. It was also decided that notices of all shipments which are inspected under the quarantines will be sent to the officials in the States to which they are forwarded.

BACK NUMBERS OF BUREAU MONTHLY LETTER.

It is possible in some cases to furnish the field stations with back numbers of the Bureau Monthly Letter and requests for same should be addressed to the Chief Clerk, Bureau of Entomology.

NEWSPAPER CLIPPINGS WANTED.

Field men should send any and all clippings relating to any forms of insects or insect damage, domestic or foreign, to the chief of the Bureau.

There is a small form, on which such clippings should be pasted, which will be furnished the field force upon application. (L.O. Howard.)

RULES FOR THE GUIDANCE OF AUTHORS IN THE PREPARATION OF BIBLIOGRAPHIES.

H. H. Baldridge, Editorial Office.

In the preparation of bibliographies the Bureau uses the same style as that adopted by the Journal of Agricultural Research. For the benefit of the authors of bulletins and articles, a few leading points are here mentioned.

The essentials of reference are: Author's surname and initials; title of article or book; title of periodical, followed by number for series, volume, number or part; pages; plates; figures; and date of publication. (See examples below.)

Where the author wishes to note a particular page in a reference, he may do so by inserting the page in the text, as follows: "Say (1, p. 303), in 1826...etc." In the bibliography the full paging of the article or book should be given.

Bibliographies may be arranged either chronologically or alphabetically.

LITERATURE CITED

CHRONOLOGICAL:

(1) Say, Thomas.
1826. Descriptions of new species of coleopterous insects inhabiting the United States. In Jour.Acad.Nat.Sci., v.5, p.293-304.

(2) Crotch, G. R.
1873. Revision of the Coccinellidae of the United States. In Trans. Amer.Ent.Soc., v.4, p.363-382.

(3) Casey, T. L.
1899. A revision of the American Coccinellidae. In Jour.N.Y.Ent.Soc., v.7, p.71-163.

ALPHABETICAL:

(1) Gibson, Arthur.
1912. Cutworms and army-worms. Canada Dept.Agr.Div.Ent.Bul.3 (Exp. Farms Bul.70), 29p., 10 fig., 1pl.

(2) Henneguy, L. F.
1904. Les Insectes, Morphologie-Reproduction-Embryogenie . . . 804p., illus., 4 col.pl. Index bibliographique, p.695-756.
(3) Korschelt, Eugen, and Heider, Karl.
1899. Textbook of the Embryology of Invertebrates . . . Translated from the German . . . v.3, London, New York.

LIBRARY.

Miss Mabel Colcord, Librarian.

NEW BOOKS.

Banks, Nathan Revision of the Cayuga Lake spiders. (Proc. Phila. acad.nat.sci. v.68, pt.1, p.68-84, pl.X-XI, 1916)

Egypt-Dept. of agriculture-Technical and scientific service. Report on the first two years' working of the plant protection law (law no.5 of 1913) By G. Storey. Cairo, 1916. (Bulletin no.1. Entomological section)
Bulletin no.2 is "The nature of the damage done by the pink boll worm (Gelechia gossypiella, Saund.," by Lewis Gough. 1916.

Jobling, James W. and Petersen, William. The epidemiology of Pellagra in Nashville, Tennessee. (Journal of infect.dis. v.18, no.5, p.501-567, illus. May, 1916)

Minnesota-Entomologist. Index to the fifteen annual and biennial reports of the State entomologist of Minnesota . . . 1895-1914. St.Anthony Park, Minn., 1916. 40p. (Circular no.38)

Needham, J. G. and Lloyd, J. T. The life of inland waters: An elementary text book of fresh-water biology for American students. Ithaca, N.Y., 1916. 438p. illus., pl. Bibliography, p.413-419.

Osborn, Herbert. Agricultural entomology. Philadelphia and New York, 1916. 347p. illus. pl.

Reed, C. S. Algunos insectos daninos a la agricultura argentina. Ed. patrosinada por el S.gobierno de San Juan. Mendoza, 1912. 123p. illus.

Tragardh, Ivar Bidrag till kannedomen om tallens och granens fiender bland smafjarilarna. Stockholm, 1916. (Ur Meddelanden fran Statens skogsforsoksanstalt, H.12, p.71-132. illus.)

U.S. Treasury Dept. Public health service. Miscellaneous publication no.1. Interstate quarantine regulations of the United States. 1916. 41p.

Virginia-State entomologist and plant pathologist. Tenth report 1914/15. Richmond, 1916. 75p. illus.,pl.

White, James Dictionary of altitudes in the Dominion of Canada (2d ed.) Ottawa, 1916. 251p.

Zoological record. v.51 . . . 1914. London, 1916.

BEE CULTURE.
E. F. Phillips, In Charge.

Geo. S. Demuth is at Fennville, Mich., continuing his work on the effects on bees of spraying fruit trees.

Plans are under way for beginning demonstration work in beekeeping during the next fiscal year. The work will be inaugurated in certain Southern States, including North Carolina, where E. G. Carr made a preliminary survey last autumn. The work will be conducted in cooperation with the States Relations Service.

The heavy packing used in the wintering of the colonies in the Drummond apiary proved quite beneficial, the only colonies lost during the winter being those which were so weak in the fall as to make wintering virtually impossible.

CEREAL AND FORAGE INSECT INVESTIGATIONS.
W. R. Walton, Acting In Charge.

The attention of those in charge of field stations in this Branch is called to the desirability of keeping their correspondence with this office relating to supplies and accounts separate from matters pertaining to the scientific phases of the work. Communications relative to supplies and accounts should be made the matter of a separate letter although such letters may be inclosed under the same cover with communications of a technical nature when convenient. This management will very much facilitate the issuing of requisitions for supplies, the handling of accounts and also the issuance of authorizations and transportation requests. Several heads of field stations have already adopted this custom and they will of course continue as at present. All communications will continue to be addressed as at present.

G. W. Barber, recently attached to the Charleston, Mo., field station, has been transferred to the range-caterpillar work, located at Maxwell, N. Mex.

The station formerly maintained at Elk Point, S. Dak., has been transferred to Sioux City, Iowa. The present address of this station is 5205 Morningside Ave, Sioux City, Iowa.

R. N. Wilson reports that experiments relating to Laphygma frugiperda carried on in Florida and Georgia during the past winter indicate that the insect did not succeed in surviving the winter much north of the latitude of Gainesville, Florida.

H. E. Smith reports that an inspection of the region in the Merrimac Valley of New England which was heavily infested with grasshoppers and treated with poisoned baits last summer reveals the fact that very few grasshopper eggs are to be found alive this spring.

C. M. Packard recently inspected the Sacramento Valley of California in search of Hessian fly and reports that the pest is apparently absent there at this time.

CITRUS FRUIT INSECT INVESTIGATIONS.
C. L. Marlatt, In Charge.

R. S. Woglum has submitted a manuscript, revising and bringing down to date the fumigation practice for citrus orchards. Messrs. Back and Pemberton have submitted for publication a manuscript entitled "The Melon Fly in Hawaii," illustrated with numerous plates showing the work of this insect. This is a well prepared manuscript and should be of great interest to all economic entomologists and represents the first serious study of this insect. J. D. Neuls has submitted a short paper on the date-palm scale, also known as Blanchard's scale. It is expected that all of

these papers will be given early publication.

D. G. Tower, who has been detailed for seven weeks to assist in the fumigation of cotton in Boston, has returned to Washington.

W. W. Yothers has returned to his headquarters at Orlando, Florida, after a brief trip of inspection of the lime orchards on some of the principal Florida keys.

DECIDUOUS-FRUIT INSECT INVESTIGATIONS.

A. L. Quaintance, In Charge.

A. T. Speare made a short trip to Hagerstown and Smithsburg, Md., in connection with observations on a fungus disease of Eulecanium nigrofasciatum.

R. A. Cushman, engaged in investigations of parasites of deciduous fruit insects, has returned to his field headquarters at North East, Pa., where he will continue his studies of Hymenopterous parasites of the grape berry moth and other insects.

A. C. Baker has been visiting orchards in the vicinity of Crozet, Staunton and Winchester, Va., making observations on certain apple aphids, especially Aphis malifoliae Fitch.

Dr. N. E. McIndoo spent about two weeks at Winchester, Va., making observations on the effect on bees of spraying orchards. He also spent some time in the general vicinity of Fennville, Mich., in similar work.

Dr. A. L. Quaintance visited Sandusky, Ohio, where a conference was held with Prof. H. A. Gossard and W. H. Goodwin, of the Ohio Agricultural Experiment Station, and Messrs. Dwight Isely and H. G. Ingerson, of this Bureau, in connection with inauguration of grape berry moth investigations in Northern Ohio.

FEDERAL HORTICULTURAL BOARD.

C. L. Marlatt, Chairman.

(In Cooperation with the Bureau of Entomology.)

The fumigation of imported cotton is now proceeding in Boston and San Francisco in a thoroughly satisfactory manner. In the use of a substance as poisonous as hydrocyanic-acid gas in such huge quantities, there is necessarily risk unless thoroughgoing precautions are constantly taken. The existence of such risk has been two or three times demonstrated already in the work at Boston, with no serious consequences, however, other than the temporary disabling of workmen. In every instance, however, these accidents have resulted from carelessness and disregard of precautionary measures which have been specifically insisted upon. It is believed that this experience will control any further tendency to carelessness on the part of the workmen concerned. The investigation of the fumigated cotton by the experts of the Federal Horticultural Board, and of the Bureau of Chemistry, of this Department, has shown that after an aeration of a day or two the fumes of the gas have practically entirely disappeared, and no further danger from fumigated cotton is possible.

During the month the following quarantines have been promulgated:

Notice of Quarantine No. 24, on "Corn Diseases." Notice of Quarantine No. 25, "Gipsy Moth and Brown-Tail Moth Quarantine."

The corn disease quarantine prohibits the importation, in the raw or unmanufactured state, from southeastern Asia (including India, Siam, Indo-China and China), Malayan Archipelago, Australia, New Zealand, Oceana, Philippine Islands, Formosa, Japan, and adjacent islands, of seed and all other portions of Indian corn or maize (Zea mays L.), and the closely related plants, including all species of Teosinte

(Euchlaena), Job's tears (Coix), Polytoca, Chionachne, and Sclerachne. This quarantine has some entomological importance in that, though directed against corn diseases, it operates at the same time to exclude any possible further entry of any oriental insects attacking this cereal.

The gipsy-moth and brown-tail moth quarantine embodies the annual revision of the territory, necessitated on account of changes in distribution of the two insects. Provision for the inspection and certification of Christmas trees has been continued for another year. Arrangements have also been made for notifying the proper State officials of all shipments of certified products from the quarantined territory, in order that the States may have a chance to reinspect such products if desired.

Irving L. Bailey, formerly connected with the gipsy-moth force, has been transferred to the Board to assist in the supervision of the disinfection of imported cotton at Boston.

FOREST INSECT INVESTIGATIONS

A. D. Hopkins, In Charge.

S. A. Rohwer has recently completed a summary of the nursery connected with the eastern Field Station, arranging it under the heads of "Deciduous" and "Coniferous" trees.

There are twenty-six species of deciduous trees represented in the nursery by one hundred and fifty-eight individuals. Most of these are oaks and are used in experiments on leaf feeding insects and gall makers.

In the coniferous nursery there are twenty-six species represented by one thousand three hundred and thirty-eight individuals. Four new conifers have been added to the nursery since last report. These are Pinus scopulorum, Pinus edulis, Pinus laricio and Pinus taeda.

Since the last report one hundred and fifty-four trees have been numbered and individual observations are being kept on these trees, in connection with the experiments with the insects. Most of these trees are being used in experiments on the two recently introduced pests, Evetria buoliana and Diprion simile.

It is noted that most of the seedlings which came from the Pacific Coast had the foliage winter killed and were considerably later in commencing to grow than species from other localities. An interesting comparison can be made between the two plots of Pseudotsuga taxifolia. In one of these the seedlings came from Oregon and every tree showed considerable winter killing of the foliage. In the other plot the seedlings came from Colorado and there was no winter killing of the foliage of these trees.

Since last report (see Bureau Monthly Letter for November 1915) ninety-nine trees have been lost either by winter killing or other causes.

T. E. Snyder left Washington on May 9 to investigate the character and extent of damage to "Australian pine" trees (Casuarina equisetifolia) in southern Florida, by a buprestid beetle, Chrysobothris impressa Fab., an insect presumably introduced into this country. According to W. S. Fisher the species occurs in Dutch Guiana, Santo Domingo and probably occurs in Cuba. The Australian pine, a rapid growing, graceful tree is planted in large numbers in southern Florida in groves along roadsides and land developed along the seacoast. This buprestid breeds in the native red mangrove tree in nearby swamps, and had previously been collected at Key West by E. A. Schwarz.

The larvae of the beetle girdle the cambium on the young Australian pine trees and badly disfigure, greatly weaken or kill the trees.

In accordance with our recommendations, the Australian pine trees are being sprayed on a large scale to kill the eggs and young larvae.

He also made trips to hammocks in the upper and lower Everglades near Miami, Florida and to Adam and Paradise Keys where several interesting species of termites were collected. He returned to Washington on May 19.

At the invitation of Mrs. John Dickson Sherman, Chairman of Conservation, of the General Federation of Women's Clubs, this branch of the Bureau cooperated in an exhibit under the auspices of the Federation in the 7th Regiment Armory, New York City, held May 23 to June 1. Our exhibit consists of specimens of the work and insects of the hickory barkbeetle (Scolytus quadrispinosus) in hickory and the two-lined chestnut borer (Agrilus bilineatus) affecting oak. Placards, with specimens of work of the two insects and folders giving illustrations of the character of the insect work and describing causes and remedies and calling special attention to the importance of community effort in control operations, are also on exhibition and for distribution.

GIPSY-MOTH AND BROWN-TAIL MOTH INVESTIGATIONS.

A. F. Burgess, In Charge.

I. L. Bailey, who has been employed as Assistant at the Gipsy Moth Laboratory, has been transferred as Quarantine Inspector with the Federal Horticultural Board. He will be engaged on cotton fumigation work under the direction of Prof. R. I. Smith.

J. J. Pillsbury, Scientific Assistant at the Gipsy Moth Laboratory, has resigned to accept the position as Assistant State Entomologist of Rhode Island.

F. X. Williams, who has been employed on the Gipsy Moth Work, has accepted a position with the Hawaiian Sugar Planters' Experiment Station. He will proceed to the Philippine Islands and assist in collecting parasites for introduction to Hawaii.

A small gipsy moth and brown-tail moth educational exhibit was installed at the 13th Biennial Convention of the General Federation of Women's Clubs held in the 7th Regiment Armory, New York, May 23rd to June 1, 1916.

Messrs. A. F. Burgess, L. H. Worthley, and D. M. Rogers attended the gipsy and brown-tail moth quarantine hearing held by the Federal Horticultural Board in Washington on May 2, 1916.

Raphael Zon, Chief of Forest Investigations, of the Forest Service, spent several days during the latter part of May inspecting the silvicultural experiments and conferring in regard to the cooperative work which is being carried on by the Bureau of Entomology and the Forest Service in connection with the gipsy moth problem.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS.

W. D. Hunter, In Charge.

B. R. Coad, A. C. Morgan, and D. L. Van Dine were in Washington for conferences during the month.

W. D. Pierce is on an extended trip to determine the status of the boll weevil especially in the regions which were invaded for the first time last season.

R. R. Parker has been appointed a scientific assistant to take effect on July 1. He will work under the direction of F. C. Bishopp and will be engaged in the study of live stock pests in Nevada and other Western States. This is a project which has been urged by the Nevada Experiment Station for some time. Dr. Parker was graduated from the Massachusetts Agricultural College in 1912. He took his masters degree in

1914, and his doctorate in 1915 from the same institution. During the summers of 1914 and 1915 he was in the employ of the Montana Board of Entomology. He has specialised in the study of the house fly and the Sarcophagidae, and has recently published several important papers.

Hunter H. Kimball and James F. Curry have been appointed temporary field assistants for assignment to the malaria mosquito investigation under Dr. D. L. Van Dine.

T. P. Cassidy and W. B. Williams, students in the Mississippi Agricultural College, have been appointed temporary field agents under B. R. Coad at Tallulah, La.

E. B. Pence has been appointed an assistant for temporary service at the laboratory at Clarksville, Tenn., under A. C. Morgan.

TRUCK CROP AND STORED PRODUCT INSECT INVESTIGATIONS

F. H. Chittenden, In Charge.

C. H. Popenoe will visit the stations which have been established, in cooperation with the Bureau of Plant Industry, for investigation of insects as carriers of mosaic, wilt, and other diseases of cucumbers and other cucurbits in the States of Wisconsin, Michigan, and Indiana. He will supervise the preparation of experimental plats with reference to the control of these insects and for community demonstration experiments.

N. F. Howard will be engaged in the same line of investigations with new headquarters at Madison, Wis.; his former station at Green Bay will be retained as a substation.

R. E. Campbell who has been in charge of an experiment station at Hayward, Cal., will remove to Pasadena, Cal., as new headquarters, retaining Hayward as a substation. He will continue work on insects injurious to stored products, to sugar beets, and to truck crops.

R. M. Garner has been engaged to assist in work on truck crop insect investigations at Norfolk, Va.